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PLUTO MISSION DEVELOPMENT STATUS

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Abstract

Pluto is the last known planet not yet visited by a spacecraft. A development team at the Jet Propulsion Laboratory is designing a mission for two very small spacecraft to complete the initial reconnaissance of our Solar System. This paper briefly describes the mission, its instrumentation, subsystems and operations, and reports on the current progress to implement advanced technology in reducing spacecraft mass and power requirements. The priority of the primary design drivers are cost, schedule and performance. The goal of the mission is to deliver two 100 kg class spacecraft on separate launch vehicles on direct trajectories to the Pluto-Charon system taking under 10 years to arrive well before the collapse of Pluto's atmosphere and the impending polar shadow that will reduce the science return. End-to-end mission costs will be strictly cost capped,

Since completing an end-to-end preliminary design in 1992 with a spacecraft mass of 165 kg, contract and in-house work has been in progress to provide breadboard proof-of-concept hardware and software contributing toward a goal to reduce mass by at least 40 kg. Results will be reported for candidate scientific payload instruments, a composite structure, advanced antenna, significantly smaller electronics packaging, all-digital telecommunications subsystem, micro-miniaturized propulsion components, and other candidate areas for mass, power and size reduction within strict cost limits.